

**THE NASA SETI PROGRAM**

J. Billingham\* and D. H. Brocker\*  
NASA Ames Research Center

In 1959 Morrison and Cocconi proposed that a sensible way to conduct interstellar communication would be to use radio at or near the frequency of hydrogen. In 1960 Frank Drake conducted the first Search for Extraterrestrial Intelligence (SETI) using a radiotelescope at Green Bank in West Virginia. Since 1970 NASA has systematically developed a definitive program to conduct a sophisticated search for evidence of extraterrestrial intelligent life.

The basic hypothesis is that life may be widespread in the universe, and that in many instances extraterrestrial life may have evolved into technological civilizations. The underlying scientific arguments are based on our continuously improving knowledge of astronomy and astrophysics, especially star system formation, and of planetary science, chemical evolution and biological evolution. If only one in a million sun-like stars in our galaxy harbors species with cognitive intelligence, then there are 100,000 civilizations in the Milky Way alone.

The fields of radioastronomy digital electronic engineering, spectrum analysis and signal detection have advanced rapidly in the last twenty years and now allow us to build sophisticated systems to attempt the detection of ETI signals. In concert with the scientific and engineering communities NASA has developed, over the last several years, a Microwave Observing Project whose goal is to design, build and operate SETI systems during the decade of the nineties in pursuit of the goal of signal detection. The Microwave Observing Project is now approved and underway. It is managed in Washington as a part of the Exobiology Program in the Division of Life Sciences at NASA HQ. It is supported with additional funding from the Office of Space Operations. Ames and JPL carry out the Project, with Ames as Lead Center. There are two major components in the Project, the Targeted Search Element, under Ames management, and the Sky Survey Element, under JPL management. The total budget for the Microwave Observing Project is \$115 over the ten year period 1990-1999. More detailed descriptions of the two elements of the Project are given in the following reports by the Ames and JPL Project Managers, respectively.